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10/784,523	02/23/2004	Allan J. Kuchinsky	10030635-1	1472
22878 7590 08/01/2008 AGILENT TECHNOLOGIES INC. INTELLECTUAL PROPERTY ADMINISTRATION,LEGAL DEPT. MS BLDG. E P.O. BOX 7599 LOVELAND, CO 80537				
EXAMINER LONG, ANDREA NATAE				
ART UNIT 2176		PAPER NUMBER		
NOTIFICATION DATE 08/01/2008		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

# Office Action Summary

**Application No.**

10/784,523

**Applicant(s)**

KUCHINSKY ET AL.

**Examiner**

Andrea N. Long

**Art Unit**

2176

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 8-29 and 51-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8-29 and 51-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

**Applicant's Response**

In Applicant's Responses dated 02/25/2008, Applicant amended Claims 8, 26, and 52, added claim 58, and argued against all rejections previously set forth in the Office Action dated 10/19/2007.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 8-29 and 51-58 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 8 and 58 are considered software per se. Computer programs may be explicitly claimed as, for example, a series of code or instructions for performing functions or may be implicitly claimed as, for example, a system, a module or an apparatus. Where there is no evidence in the specification that a means which may be interpreted as software, hardware or combinations thereof necessarily includes hardware, it will be interpreted in its broadest reasonable sense as a software means, which is the case here.

Thus a claim to functional descriptive material, including computer programs, per se, is not patent eligible subject matter. Claims 9-29 and 51-57 are rejected as inheriting the deficiencies of independent claim 8.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 8-11, 18-23, 26-29, 51-53, and 54-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eric Infanti (Microsoft Visio 2002: 10 Minute Guide, 2002), hereinafter Infanti in view of Applicant's Admitted Prior art, hereinafter "AAPA" in further view of Joe Kraynak (Absolute Beginner's Guide to Microsoft Office Excel 2003, September 11, 2003), hereinafter "Excel".**

**As to independent claim 8**, Infanti teaches a system for manipulating data comprising (Visio):

a library of re-usable stencils for representing interactions; (page 13, 156-157, Figure 1.7);

means for selecting stencils to be populated with specific information (creating a stencil);

means for assigning specific data to selected stencils (dragging shapes to the stencil); and

means for displaying stencils with the assigned specific data (opening the stencil) (pages 153-157).

Infanti teaches where Visio is used to represent a database model, such as entities and relationships in a database model diagram, objects in the physical world, and objects in a organizational hierarchy (page 12), but does not explicitly teach where the data and information is biological data or biological information or a local format infrastructural layer configured to transform specific biological information represented in a text, data or graphical format to one or both of the other text, data or graphical formats that the specific biological information is not already represented in.

AAPA teaches Network diagrams which are used to represent biological activity, wherein biological entities and the interrelationships between them are represented graphically (page 1, paragraph [0004]. AAPA additionally teaches where Visio is a leading general-purpose diagramming product used in creating network diagrams (page 3, paragraph [0008]).

Excel teaches a local format infrastructural layer configured to transform specific information represented in a text, data or graphical format to one or both of the other text, data or graphical formats that the specific information is not already represented in. (page 1 – Excel teaches taking data from a spreadsheet and transforming the data to create a chart).

Infanti, AAPA, and Excel all teach representing data in visual formats for display to a user, for better interpretation of the data. It would have been obvious to one skilled in the art at the time the invention was made to substitute the manipulating of data and information as that of Infanti with biological data and information to represent and manipulate a network diagram efficiently while allow the data to be transformed from one viewable state such as textual to graphical to give that data meaning and make it more understandable.

**As to dependent claim 9**, Infanti teaches means for connecting common elements of said stencils with assigned specific biological data to display a biological diagram having said stencils as components thereof (page 12-14).

**As to dependent claim 10**, Infanti teaches means for designing and saving additional stencils not previously contained in said library (pages 153-157).

**As to dependent claim 11**, Infanti teaches means for modifying stencils contained in said library (page 151).

**As to dependent claim 18**, Infanti teaches means for navigating to data selected from said specific biological data and displayed on at least one of said stencils (page 113-114).

**As to dependent claims 19 and 20**, note the discussion above in claim 8, Infanti in view of AAPA and Excel teaches a systems for selecting stencils to be populated with biological information. Infanti also teaches wherein Visio stencils are files (page 13). While Infanti, AAPA or Excel do not disclose comparing two stencils and displaying the difference, this method is well known in the art, such as that of the Diff tool, which compares two files and outputs the differences between the two files.

It would have been obvious to one skilled in the art at the time the invention was made to have included the use of a comparison tool such as the Diff tool to compare stencils to provide

visual representation of differences in stencils that would lead to updates and managing of stencils in a library.

**As to dependent claim 21**, note the discussion above in claim 19. Infanti additionally teaches means for mapping between said selected stencils containing specific biological data and an existing biological diagram (pages 113-114).

**As to dependent claim 22**, Infanti teaches adding elements to a stencil on said canvas (pages 148-150).

**As to dependent claim 23**, Infanti teaches means for merging said stencils with a biological network and means for displaying said stencils merged with said biological network (pages 12-13).

**As to dependent claim 26**, Infanti teaches means for linking the displayed stencils with other sources of biological data from which the specific biological data was extracted, using a local formatting language (pages 93,113-114). As discussed above in claim 1, Excel teaches the using a local formatting language of said local format infrastructural layer to transform textual data to graphical data (page 1) to give data meaning and make it more understandable.

**As to dependent claims 27, 28, and 29**, Infanti teaches means for annotating at least a portion of at least one of said stencils, wherein the annotating includes text and overlaying annotations on a biological diagram (pages 63-64).

**As to dependent claim 51**, Infanti teaches wherein each stencil in the library of re-usable stencils comprises:

graphical elements (shapes) representing entities and at least one interaction; each said graphical element comprising semantics representative of a particular type of biological entity or interaction; and

slots for providing specific biological information, including specific entity names and directionality of interactions (page 12-13, 63-64).

**As to dependent claim 52**, note the discussion of claim 8, Infanti teaches a visual grammar (stencil) is represented in local format, enabling interactive functions to be performed among biological diagrams, textual documents (pages 93, 113-114). Infanti does not explicitly teach experimental data. AAPA discloses that experimental data is well-known and common method used to help biologist create and manipulate information related to biological networks. As discussed above in claim 1, Excel teaches the using a local format of said local format infrastructural layer to transform textual data to graphical data (page 1) to give data meaning and make it more understandable.

It would have been obvious to one skilled in the art at the time the invention was made to have included experimental data in the system of Infanti in view of AAPA and Excel to provide analyzed information to a result for comparison.



**As to dependent claim 53**, Infanti teaches wherein when said slots are filled with specific biological information, said specific biological information is automatically added to the local format (pages 63-64).

**As to dependent claim 54**, Infanti teaches wherein said stencils can exist at multiple levels of abstraction, ranging from molecular interactions to higher-level biological concepts (page 148).

**As to dependent claim 55**, Infanti teaches wherein stencils can be composed hierarchically to compose relatively more complex stencils from relatively smaller stencils (153-154).

**As to dependent claims 56 and 57**, Infanti teaches wherein said stencils are collaboratively useable among multiple users by sharing of filled in stencils (page 148).

**As to independent claim 58**, claim 58 recites substantially similar subject matter as that of claim 8, and in further view of the following, is rejected under the same rationale.

Infanti teaches wherein each stencil in the library of re-usable stencils comprises:  
graphical elements (shapes) representing entities and at least one interaction; each said graphical element comprising semantics representative of a particular type of entity or interaction; and

slots for providing specific information, including specific entity names and directionality of interactions (page 12-13, 63-64).

**Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Infanti in view of AAPA in further view of Excel as applied to claim 8 above, and further in view of Apprentice Systems—Microsoft Case Study (August 2001), hereinafter “Flowtronex”.**

**As to dependent claim 12**, Infanti teaches a system for manipulating data (Visio). Infanti does not teach wherein the data is biological data and designing and associating rules with stencils. AAPA teaches the building of a Network diagram through Visio. Excel teaches a local format infrastructural layer. Flowtronex teaches an overlay onto Visio that designs and applies rules to Visio shapes (page 2 and 3).

It would have been obvious to one skilled in the art at the time the invention was made to have combined the system of diagramming biological data of Infanti in view of AAPA and Excel with the designing and applying of rules to Visio master shapes to eliminate manual processing by creating an automatic process.

**As to dependent claims 13, 14, and 15**, Infanti teaches a system for manipulating data (Visio). Infanti does not teach wherein the data is biological data and means for rule checking to validate interaction represented by a stencil and checking those roles against additional data within a pre-existing diagram. AAPA teaches the building of a Network diagram through Visio. Excel teaches a local format infrastructural layer. Flowtronex teaches an overlay onto Visio that designs and applies rules to Visio shapes. In addition, Flowtronex scans a Visio drawing and

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performs checks to prevent illegal connections as applied to the knowledge generated by the Apprentice Mentor tool (page 2 and 3).

It would have been obvious to one skilled in the art at the time the invention was made to have combined the system of diagramming biological data of Infanti in view of AAPA and Excel with the checking of rules of Flowtronex to eliminate illegal connections.

**As to dependent claim 16**, note the discussion above of claim 14, Infanti teaches a system for manipulating data. Infanti does not disclose wherein said additional data comprises experimental data. AAPA discloses that experimental data is well known and common method used to help biologist create and manipulate information related to biological networks. It would have been obvious to one skilled in the art to include experimental data in the system of Infanti in view of AAPA and Excel in further view of Flowtronex to provide analyzed information to a result for comparison.

**As to dependent claim 17**, note the discussion above of claim 14, Infanti teaches a system for manipulating data. Infanti does not teach rule checking and displaying an overlay of the results on a network diagram. Flowtronex teaches an overlay onto Visio that design and assigns rules to Visio shapes. While not forcefully disclosed by Flowtronex, it is reasonable to one skilled in the art to have results of the rule checking overlay on the network diagram, such as highlighting, to visually depict errors in the diagram for correction.

**Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Infanti in view of AAPA in further view of Excel as applied to claim 8 above, and further in view of Artymuik et al (The Use of Graph Theoretical Methods for the Comparison of the Structures of Biological Macromolecules, 1995), hereinafter “Artymuik”.**

**As to dependent claims 24 and 25**, Infanti teaches a system with stencils for creating a diagram. Infanti however does not disclose comparing a plurality of stencils, using graph theoretic methods. AAPA discloses wherein there a rich history of graph theoretic network tools used to analyze the properties of biological networks exists {page 4 paragraph [0004]}. It is reasonably suggestive to one skilled in the art to have means for comparing a plurality of said stencils, using graph theoretic methods to analyze the differences among stencils. Artymuik teaches comparing one graph with another to determine the structural relationships that exist between them (identification of a sub graph) (page 84).

It would have been obvious to one skilled in the art at the time the invention was made to have included the use of graph theoretic methods to compare a plurality of stencils for examining and comparing of macromolecule structures.

#### ***Response to Arguments***

Applicant's arguments with respect to claims 8, 12, 15, 17, 24-26, 51-54, and 58 have been considered but are moot in view of the new ground(s) of rejection.

It is noted that the bulk of the Applicant's arguments are directed to Infanti's in view of Macrae asserted lack of representing biological information and a local format infrastructural layer. These arguments have been addressed in the outlying claim rejections above with the

teachings of AAPA providing support for teaching in combination with Infanti representing biological data and Excel in combination with Infanti and AAPA to teach a local format infrastructural layer.

With regards to claims 19 and 20, the Applicant requested the Examiner to provide a reference disclosing the teaching of a "Diff tool". The Examiner respectfully submits a current and archived version of an article through Wikipedia which teaches the main use of the Diff tool which is to compare two file and display the difference along with the earliest knowledge of the Diff tool dating back to the 1970s.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrea N. Long whose telephone number is 571-270-1055. The examiner can normally be reached on Mon - Thurs 6:00 am to 3:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Doug Hutton can be reached on 571-272-4137. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

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system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andrea Long

July 23, 2008

/Rachna S Desai/  
Primary Examiner, Art Unit 2176